

WHAT IS CLAIMED IS:

1. A data storage system that provides dynamic remapping of resources, the data storage system comprising:

a first data storage resource;

at least one client device configured to request data from the first data storage resource;

a first server capable of accessing the first data storage resource;

a second server capable of accessing the first data storage resource; and

dynamic session redirector circuitry in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server, wherein the dynamic session redirector circuitry is configured to access the first data storage resource in response to the request from the at least one client device, the dynamic session redirector circuitry configured to access the first data storage resource through either the first server or the second server, the dynamic session redirector determining which server through which to access the resource based upon the operational status of the first and second servers.

2. A data storage system as in Claim 1 wherein the operational status comprises a failure status of the first and second servers.

3. A data storage system as in Claim 1 wherein the operational status comprises a prediction of the expected load for the first and second servers.

4. A data storage system as in Claim 1 wherein the operational status comprises a processing load being handled by the first and second servers.

5. A data storage system as in Claim 1 wherein the operational status comprises a measure of the memory utilization of the first and second servers.

6. A data storage system as in Claim 1 wherein the dynamic session redirector circuitry maintains a table listing the association between the first data storage resource and the server through which the dynamic session redirector circuitry accesses the first data storage resource, and wherein the dynamic session redirector circuitry rewrites the table when the first data storage resource is accessed through a different server.

7. A data storage system that provides dynamic remapping of resources, the data storage system comprising:

a first server;

a second server;

a plurality of data storage resources which are accessible through the first server and the second server; and

a dynamic session redirector in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server, wherein the dynamic session redirector sends requests for access to at least one of the plurality of data storage resources in response to a request for access to data storage resources made to the dynamic session redirector by the at least one client device, and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of data storage resources with one of the first server and second server, and the dynamic session redirector sends the request for access to the data storage resources to one of the first server and second server based upon the mapping between the data storage resource being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of data storage resources with one of either the first server or second server based upon the status of the first and second servers.

8. A data storage system as in Claim 7 wherein the client is provided with a single system interface including the data storage resources of the first and second server by the dynamic session redirector.

9. A data storage system for providing a single system interface for multiple data storage resources to clients connecting to the data storage system across a network via a stateful network protocol, the system comprising:

a dynamic session redirector;

a plurality of servers connected via a communications network to the dynamic session redirector;

a storage area network hub connected to the one or more servers;

one or more raid controllers connected to the storage area network hub; and

a plurality of data storage resources connected to the one or more raid controllers,

the dynamic session redirector configured to provide a single system interface for accessing the plurality of data storage resources to a client connected to the data storage system, the redirector configured to receive requests from a client using a stateful protocol and to provide a first communications session between the client and the redirector in response to a request from the client, the dynamic session redirector sending requests for access to at least one of the plurality of data storage resources in response to the requests from the client, and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of data storage resources with one of the plurality of servers, and the dynamic session redirector sends the request for access to the data storage resources to one of the plurality of servers based upon the mapping between the data storage resource being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of data storage resources to any of the plurality of servers based upon the status of the one or more servers.

10. A data storage system as in Claim 9 wherein the redirector is further configured to send a request for access to the data storage resources to a second of the plurality of servers based upon the mapping between the data storage resource being accessed and the server listed in the table.

11. A data storage system that provides dynamic association of storage resources which are made available to clients connecting to the data storage system across a network, the data storage system comprising:

a plurality of storage means for storing of data;

a first server means for providing access to the plurality of storage means;

a second server means for providing access to the plurality of storage means;

a redirector means for receiving requests from a client for access to one of the plurality of storage means, and for providing an association between the plurality of storage means and one of the first server means and second server means, the redirector means also accessing one of the plurality of storage means through the server means associated with the storage means, the redirector means changing the

association between any of the plurality of storage means and the first or second server means based upon the status of the first and second server means.

12. A method for accessing data on a plurality of storage resources comprising:

- receiving a request for access to one of the plurality of storage resources;

- looking up an association between the one of the storage resources and one of a plurality of servers for accessing the plurality of storage resources;

- accessing the one of the storage resources through the one of the plurality of servers;

- determining the load on at least one of the plurality of servers due to the plurality of storage resources; and

- assigning new associations between the plurality of storage resources and the plurality of servers based upon the load on at least one of the plurality of storage resources.

13. A method as in Claim 12 wherein the step of accessing the one of the storage resources further comprises send a first request to the one of the plurality of servers, and sending a second request to a second of the plurality of servers.

14. A method for accessing data on a plurality of storage resources comprising:

- receiving a request for access to one of the plurality of storage resources;

- looking up an association between the one of the storage resources and a plurality of servers for accessing the plurality of storage resources;

- sending a first request to a first of the plurality of servers for accessing the one of the storage resources;

- sending a second request to a second of the plurality of servers for accessing the one of the storage resources;

- receiving a first response from the first server;

- receiving a second response from the second server;

- determining the load on at least one of the plurality of servers due to the plurality of storage resources; and

assigning new associations between the plurality of storage resources and the plurality of servers based upon the load on at least one of the plurality of storage resources.

15. A method for balancing the load among a plurality of servers being used to access a plurality of data resources, the method comprising:

maintaining a table of associations between a plurality of data resources and a plurality of servers where at least one of the plurality of data resources is assigned to one of the plurality of servers;

evaluating the load imposed upon the plurality of servers by the data resources associated with the plurality of servers;

determining whether the load imposed by the plurality of data resources may be more evenly distributed among the plurality of servers by altering the associations between the plurality of data resources and the plurality of servers; and

updating the table of associations between the plurality of data resources and the plurality of servers to reflect the more even distribution of load.